ADDENDUM 2 TO THE WAC ATTAINMENT REPORT FOR AREA 7 SOILS (SILOS PROJECT AREA)

WAC CHARACTERIZATION FOR VARIANCE/FIELD CHANGE NOTICES 20500PSP1-9, 12, 14, AND 15

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT FERNALD, OHIO

MAY 24, 2000

U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

20500-RP-0001
REVISION A
DRAFT

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LIST OF ACRONYMS AND ABBREVIATIONS

ASL	Analytical Support Level
AWR	Advanced Waste Retrieval Project
DOE	U.S. Department of Energy
GCS/WTS	Gas Cleaning System/Water Treatment System
mg/kg	milligrams per kilogram
OEPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
pCi/g	picoCuries per gram
ppm	parts per million
PSP	Project Specific Plan
RI/FS	Remedial Investigation/Feasibility Study
V/FCN	Variance/Field Change Notice
WAC	waste acceptance criteria

1.0 INTRODUCTION AND SCOPE

This second addendum summarizes the most recent waste acceptance criteria (WAC) attainment sampling and analysis results in support of the Advanced Waste Retrieval Project (AWR) and the Silo 3 Project. These recent characterization efforts are documented in Variance/Field Change Notices (V/FCNs) to the Project Specific Plan for WAC Attainment Sampling of Area 7 Soils (DOE 1998a). The V/FCNs for the sampling and analysis are 20500PSP1-9, 12, 14 and 15. The soil sampling was performed to determine compliance with the On-Site Disposal Facility (OSDF) WAC for soil within the footprint of planned construction areas to support future processing of Silos waste.

Initial soil sampling and real-time scanning to support the Silos Infrastructure Project was conducted in Fall 1998. The results of this effort are documented in a letter report in December 1998 (DOE 1998b). The report was approved by the Ohio Environmental Protection Agency (OEPA) on February 5, 1999 and by the U.S. Environmental Protection Agency on February 17, 1999. Additional sampling to support a section of the infrastructure road that affected the pilot plant drainage ditch was sampled in late December 1999, with the results summarized in the first addendum in January 1999 (DOE 1999). The first addendum was transmitted to the Agencies as part of responding to additional OEPA comments on the Silos Infrastructure Project. In Fall 1999, soil sampling and real-time scanning was conducted to support WAC attainment for a proposed construction laydown area near the Lime Sludge Ponds. The results of this data collection are summarized in the attached letter (Appendix A) submitted in late November 1999.

This report constitutes Addendum 2 and summarizes the sampling design, analytical data and conclusions drawn from the characterization of soils for V/FCNs 20500PSP1-9, 12, 14 and 15.

2.0 SAMPLING DESIGN

The sampling design for each of the V/FCNs was developed after reviewing the surrounding historical sampling data, both RI/FS and WAC attainment. The historical RI/FS data is presented previously in the PSP, while recent WAC attainment data is presented in the previous summary documents referenced in Section 1.

Based on factors such as depth, analytes of concern, and proximity of the surrounding data, additional sample locations were generated to sufficiently characterize the soils planned for excavation. Figure 2-1 depicts all the WAC attainment sampling locations for the PSP for WAC Attainment Sampling of Area 7 Soils, including V/FCN 20500PSP1-9, 12, 14 and 15. A brief summary of the design of each sampling event is described below. Appendix B consists of the associated V/FCNs for the sampling efforts.

2.1 V/FCN 20500PSP1-09 SCANNING AND SAMPLING

Sampling described in this V/FCN was also known as A7PII sampling. The sampling design involved real-time scanning and surface soil sampling at six locations (A7-G1 through A7-G6) in a proposed construction support area South of Silo 1. The surface was scanned and soil samples collected to support the potential use as an equipment laydown and preparation area. In addition, soil borings were conducted to a depth of 5 feet at six locations (A7-G7 through A7-G12) along a proposed pipe run east of Silo 2, 3 and 4. Six-inch soil sample intervals were collected at the 0 to 0.5, 1 to 1.5, 2.5 to 3, and 4.5 to 5 foot depths. These samples were collected to support WAC attainment of the soil excavated from the pipe run foundations. All samples were submitted for total uranium and technetium-99 analysis at ASL B. Each boring was subjected to field radiological screening using a beta-gamma meter (frisker).

2.2 V/FCN 20500PSP1-12 SAMPLING

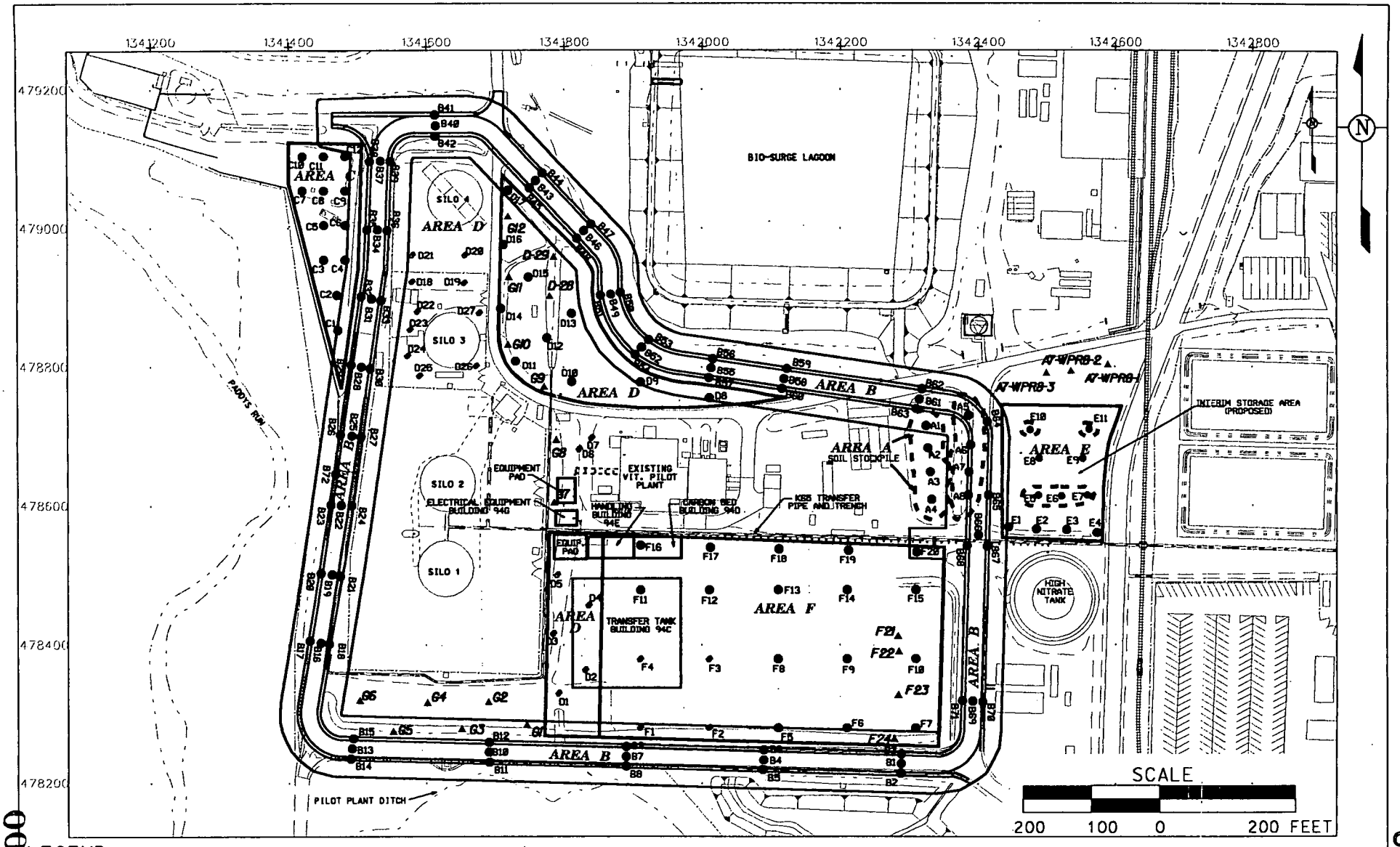
The sampling design involved the collection of two soil borings (A7-28 and A7-29) to a depth of 5 feet within Area D. Six-inch soil sample intervals were retrieved at the 0 to 0.5, 1 to 1.5, 2.5 to 3, and 4.5 to 5 foot depths. These samples were collected to demonstrate WAC attainment for excavated soil from the installation of catch basins, drainage lines, and a concrete storage area near the proposed Silo 3 Interim Storage Area. The samples were submitted for total uranium and technetium-99 analysis at ASL B. Each boring was subjected to field radiological screening using a beta-gamma meter (frisker).

2.3 V/FCN 20500PSP1-14 SAMPLING

The sampling design involved the collection of three soil borings (A7-WPR8-1, 2, and 3) from a small soil/gravel/sand pile located just north of Area E (K-65 Laydown Area). The pile is comprised of construction material (sand and gravel), purchased from an off-site vendor, and soil from the construction of the IT-operated Gas Cleaning System/Water Treatment System (GCS/WTS) building. Soil sampling was conducted in anticipation of removal of the pile and disposition to the OSDF. Three randomly selected, 6-inch soil sample intervals were collected and submitted for total uranium and technetium-99 analysis at Analytical Support Level (ASL) B. Each boring was subjected to field radiological screening using a beta-gamma meter (frisker).

2.4 V/FCN 20500PSP1-15 SAMPLING

The sampling design involved the collection of four soil borings (A7-F21, 22, 23 and 24) in the footprint of the proposed K-65 Stabilization Facility (Area F). Three 6-inch soil sample intervals were collected at the 1.5 to 2, 3.5 to 4, and 5.5 to 6 foot depths. Surface sample intervals were not collected since sufficient real-time scanning and soil sample data was already available. At-depth soil sampling was conducted to support the WAC attainment for soil excavated in the installation of underground piping (sanitary lines). The samples were submitted for total uranium and technetium-99 analysis at ASL B. Each boring was subjected to field radiological screening using a beta-gamma meter (frisker).



LEGEND:

PRESENT WAC SAMPLING (THIS REPORT):

- ▲ G1- G12, VARIANCE 9 SAMPLING
- ▲ D28 AND D29, VARIANCE 12 SAMPLING
- ▲ WPR8-1 - WPR8-3, VARIANCE 14 SAMPLING
- ▲ F21- F24, VARIANCE 15 SAMPLING

PREVIOUS WAC SAMPLING:

- • SAMPLE/BORING LOCATION
- • DEEP BORING LOCATION

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STATE PLANAR COORDINATE SYSTEM 1983

FIGURE 2-1. SILOS PROJECT AREA, SOIL WAC ATTAINMENT SAMPLING LOCATIONS

24-MAY-2000

3.0 SUMMARY OF ANALYTICAL RESULTS AND CONCLUSIONS

The real-time scanning data for V/FCN 20500PSP1-09 are mapped in Figure 3-1. The sampling results for all the V/FCNs are summarized in Table 3-1. The highest total uranium and technetium-99 result was 43.6 milligrams per kilogram (mg/kg) and 2.2 picoCuries per gram (pCi/g), respectively. The beta-gamma frisker measurements for all borings were near background limits. The scanning, sample, and beta-gamma results demonstrate that the soils are well below the WAC limit for the two constituents of concern and are near background levels.

The results obtained from this sampling design, combined with the historical data, demonstrate that there is no above-WAC concern for the soils identified for excavation in the aforementioned V/FCNs. Therefore, the AWR and Silo 3 Projects can plan to proceed with excavation and disposition of the soil and debris per the Silos Project waste management plan in early Summer of 2000.

TABLE 3-1
SUMMARY OF WAC ATTAINMENT DATA FOR V/FCNS 20500PSP1-9, 12, 14, AND 15

Sample ID	Parameter	Result	Units	Qualifier	Parameter	Result	Units	Qualifier
Variance 20500-001-9								
A7-G1-1-R	Total Uranium	10.2	ppm	NV	Technetium 99	1.4	pCi/g dry	UNV
A7-G2-1-R	Total Uranium	1.48	ppm	NV	Technetium 99	1.5	pCi/g dry	UNV
A7-G3-1-R	Total Uranium	10.6	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G4-1-R	Total Uranium	10.3	ppm	NV	Technetium 99	1.4	pCi/g dry	UNV
A7-G5-1-R	Total Uranium	10.2	ppm	NV	Technetium 99	1.4	pCi/g dry	UNV
A7-G6-1-R	Total Uranium	10	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G7-1-R	Total Uranium	2.95	ppm	NV	Technetium 99	1.4	pCi/g dry	UNV
A7-G7-3-R	Total Uranium	10.6	ppm	NV	Technetium 99	1.2	pCi/g dry	UNV
A7-G7-6-R	Total Uranium	2.17	ppm	NV	Technetium 99	1.4	pCi/g dry	UNV
A7-G7-10-R	Total Uranium	2.46	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G8-1-R	Total Uranium	13.7	ppm	NV	Technetium 99	1.2	pCi/g dry	UNV
A7-G8-3-R	Total Uranium	4.11	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G8-6-R	Total Uranium	2.15	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G8-10-R	Total Uranium	3.25	ppm	NV	Technetium 99	1.4	pCi/g dry	UNV
A7-G9-1-R	Total Uranium	2.16	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G9-3-R	Total Uranium	1.93	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G9-6-R	Total Uranium	4.66	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G9-10-R	Total Uranium	1.71	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G10-1-R	Total Uranium	43.6	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G10-3-R	Total Uranium	7.53	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G10-6-R	Total Uranium	2.22	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G10-10-R	Total Uranium	2.78	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G11-1-R	Total Uranium	25	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G11-3-R	Total Uranium	4.35	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G11-6-R	Total Uranium	4.29	ppm	NV	Technetium 99	1.4	pCi/g dry	UNV
A7-G11-10-R	Total Uranium	2.93	ppm	NV	Technetium 99	1.2	pCi/g dry	UNV
A7-G12-1-R	Total Uranium	4.45	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-G12-3-R	Total Uranium	1.32	ppm	NV	Technetium 99	1.2	pCi/g dry	UNV
A7-G12-6-R	Total Uranium	1.37	ppm	NV	Technetium 99	1.2	pCi/g dry	UNV
A7-G12-10-R	Total Uranium	1.81	ppm	NV	Technetium 99	1.2	pCi/g dry	UNV

TABLE 3-1
SUMMARY OF WAC ATTAINMENT DATA FOR V/FCNS 20500PSP1-9, 12, 14, AND 15

Sample ID	Parameter	Result	Units	Qualifier	Parameter	Result	Units	Qualifier
Variance 20500-001-12								
A7-D28-1-R	Total Uranium	2.6	ppm	NV	Technetium 99	1.4	pCi/g dry	UNV
A7-D28-3-R	Total Uranium	2.02	ppm	NV	Technetium 99	1.5	pCi/g dry	UNV
A7-D28-6-R	Total Uranium	2.29	ppm	NV	Technetium 99	2.2	pCi/g dry	UNV
A7-D28-10-R	Total Uranium	2.15	ppm	NV	Technetium 99	1.2	pCi/g dry	UNV
A7-D29-1-R	Total Uranium	4.68	ppm	NV	Technetium 99	1.4	pCi/g dry	UNV
A7-D29-3-R	Total Uranium	1.95	ppm	NV	Technetium 99	1.2	pCi/g dry	UNV
A7-D29-6-R	Total Uranium	2.23	ppm	NV	Technetium 99	1.2	pCi/g dry	UNV
A7-D29-10-R	Total Uranium	1.73	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
Variance 20500-001-14								
A7-WPR8-1-9-R	Total Uranium	3.74	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
A7-WPR8-2-19-R	Total Uranium	5.33	ppm	NV	Technetium 99	1.5	pCi/g dry	UNV
A7-WPR8-3-7-R	Total Uranium	4.28	ppm	NV	Technetium 99	1.3	pCi/g dry	UNV
Variance 20500-001-15								
A7-F21-4-R	Total Uranium	2.35	ppm	NV	Technetium 99	1.5	pCi/g dry	UNV
A7-F21-8-R	Total Uranium	2.29	ppm	NV	Technetium 99	0.65	pCi/g dry	UNV
A7-F21-12-R	Total Uranium	2.7	ppm	NV	Technetium 99	0.82	pCi/g dry	UNV
A7-F22-4-R	Total Uranium	2.1	ppm	NV	Technetium 99	0.74	pCi/g dry	UNV
A7-F22-8-R	Total Uranium	1.67	ppm	NV	Technetium 99	0.76	pCi/g dry	UNV
A7-F22-12-R	Total Uranium	2.09	ppm	NV	Technetium 99	0.89	pCi/g dry	UNV
A7-F23-4-R	Total Uranium	1.88	ppm	NV	Technetium 99	0.81	pCi/g dry	UNV
A7-F23-8-R	Total Uranium	1.79	ppm	NV	Technetium 99	0.88	pCi/g dry	UNV
A7-F23-12-R	Total Uranium	1.27	ppm	NV	Technetium 99	0.79	pCi/g dry	UNV
A7-F24-4-R	Total Uranium	1.69	ppm	NV	Technetium 99	1.1	pCi/g dry	NV
A7-F24-8-R	Total Uranium	2.16	ppm	NV	Technetium 99	0.88	pCi/g dry	UNV
A7-F24-12-R	Total Uranium	1.89	ppm	NV	Technetium 99	0.85	pCi/g dry	UNV

NV- non validated
UNV- estimated non validated

Area 7 WAC Attainment Scanning Phase I&II
Figure 3-1

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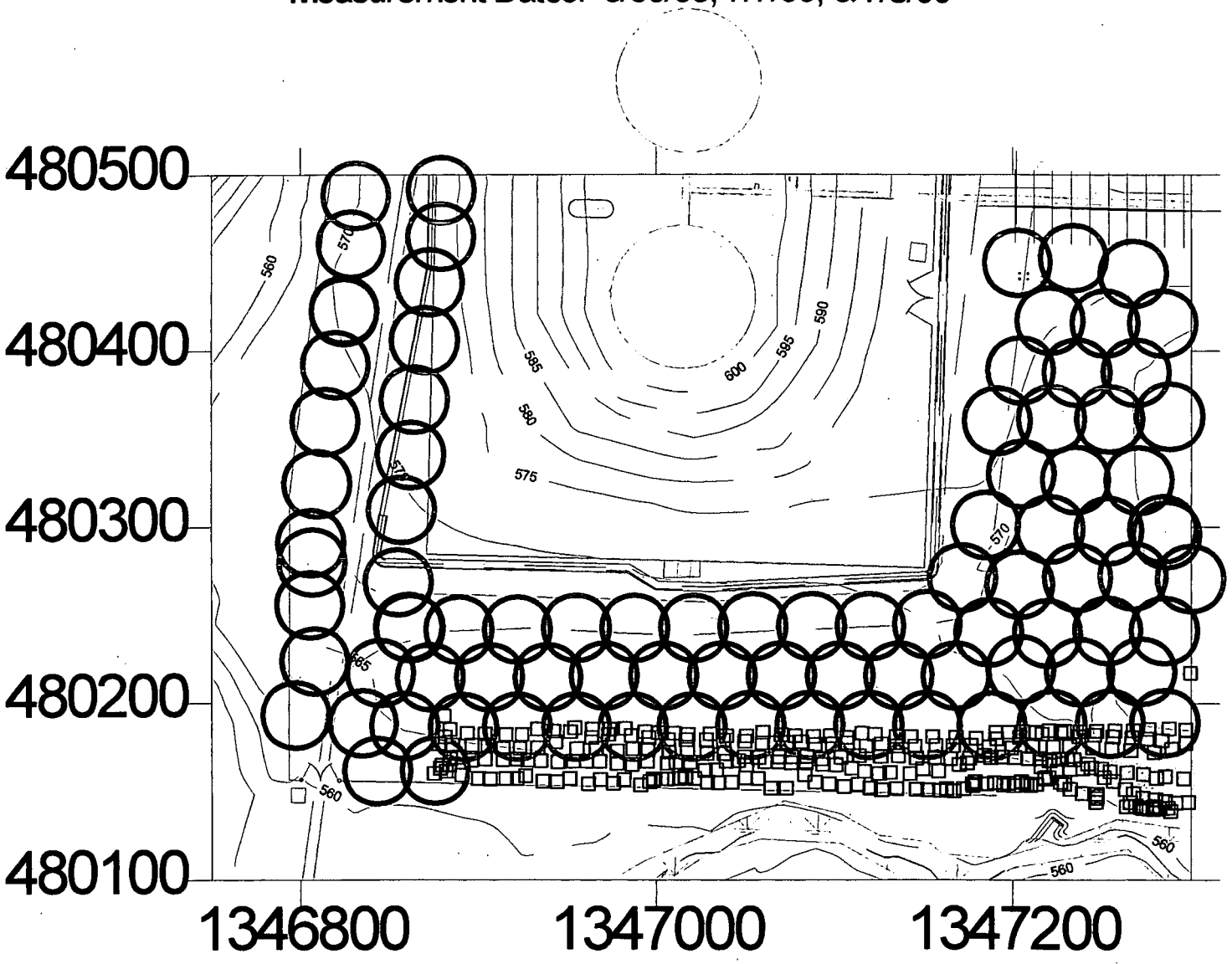
Moisture Corrected Total Uranium
HPGEs used
Coverage Plot (Field of view to scale)
Measurement Dates: 6/30/99, 7/7/99, & 7/8/99

N



RMS Total Uranium (ppm)
- -110.00 to 82.00
- 82.00 to 164.00
- 164.00 to 246.00
- 246.00 to 328.00
- 328.00 to 10000.00

HPGe Total Uranium (ppm)
- 0.00 to 82.00
- 82.00 to 164.00
- 164.00 to 246.00
- 246.00 to 328.00
- 328.00 to 10000.00

RTIMP DWG Title: A7-P1&P2-TU-1PT-MC
Project: 20500-PSP-0001-9
Name: WAC Attainment Sampling of Area 7
Prepared by: David Allen
File: A7_P1&P2_TU_1PT_MC.srf
Date Prepared: 05/23/00

REFERENCES

U.S. Department of Energy, 1998a, "Project Specific Plan for WAC Attainment Sampling of Area 7 Soils," Revision 0, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 1998b, "WAC Attainment Report for Area 7 Soils (Silos Project Area)," Draft, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 1999, "Addendum to the WAC Attainment Report for Area 7 Soils (Silos Project Area)," Draft, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

APPENDIX A

ANALYTICAL SUMMARY FOR THE PROPOSED LIME SLUDGE POND CONSTRUCTION LAYDOWN AREA

FLUOR DANIEL FERNALD

3024

Fluor Daniel Fernald, Inc.
P. O. Box 538704
Cincinnati, OH 45253-8704

FACSIMILE LEAD SHEET

No. of Pages: 3
(Including Lead Sheet)

DATE: November 29, 1999

TO: Tom Schneider, Ohio EPA
James Saric, U.S. EPA
Francie Hodge, Tetra Tech

COMPANY NAME:

LOCATION:

FAX NO. TO BE CALLED: (937) 285-6404
(312) 353-8426
(312) 938-0118

TELEPHONE NO.:

FROM: Jyh-Dong Chiou **TELEPHONE NO.:** (513) 648-3726

PROJECT NAME: Fernald Environmental Mgmt. **CONTRACT NO.:** DE-AC24-92OR21972

MESSAGE

SUBJECT: ANALYTICAL SUMMARY FOR PROPOSED LIME SLUDGE POND (LSP) CONSTRUCTION LAYDOWN AREA SOUTH OF K-65 TRENCH

This cover letter summarizes the analytical data sampled from proposed LSP construction laydown area south of the K-65 trench. Also discussed in this letter, as previously detailed in the draft LSP Implementation Plan comment responses, are the proposed intentions for preparing the laydown area.

Per Variance/Field Change Notice 20500PSP1-11 (reviewed and verbally approved by OEPA in October) physical soil samples were collected to confirm or deny the presence of above-WAC concentrations of technetium-99 (Tc-99) and total uranium. Two sample locations from the previous CIS investigation had above-WAC concentrations for Tc-99. These locations were resampled and bounded with additional sample locations. The analytical results are summarized in the attached map. All the results are validated with non-detect (U), estimated (J), and no data qualifier (-) qualifications.

All the data are below-WAC concentrations for (Tc-99) and total uranium. Based on these results and with regulatory approval, DOE intends to use this area south of the K-65 trench as a construction support/laydown area. Per the August 5, 1999 draft Implementation Plan RTC (Attachment A), the area will be prepared with a geotextile overlaid with 6 inches of stone. DOE requests concurrence to follow this plan based on the below-WAC results.

If you have any questions or concerns, please contact Rich Abitz at (513) 648-4629.

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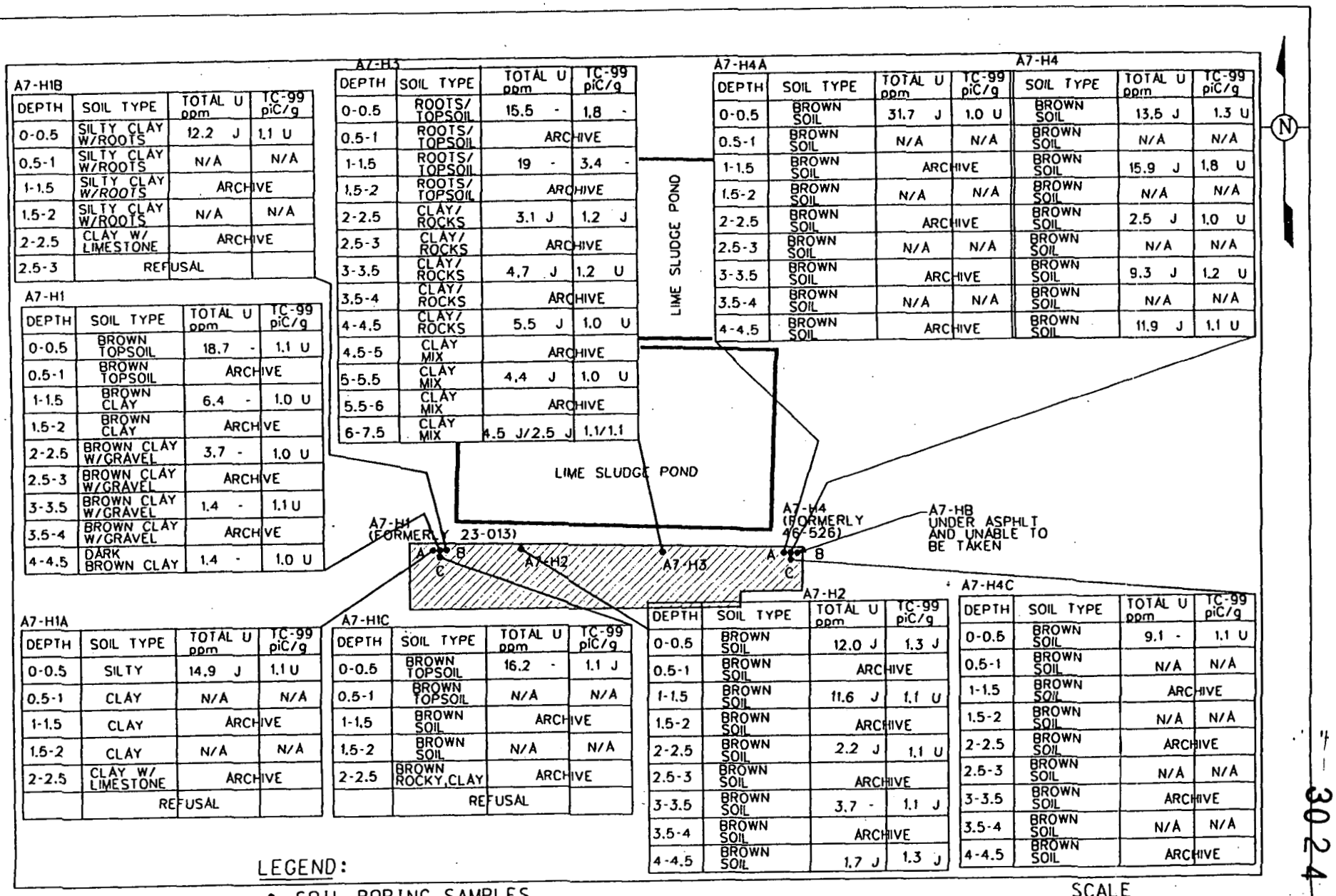

A7-H1B

DEPTH	SOIL TYPE	TOTAL U ppm	TC-99 piC/g
0-0.5	SILTY CLAY W/ROOTS	12.2 J	1.1 U
0.5-1	SILTY CLAY W/ROOTS	N/A	N/A
1-1.5	SILTY CLAY W/ROOTS	ARCHIVE	
1.5-2	SILTY CLAY W/ROOTS	N/A	N/A
2-2.5	CLAY W/ LIMESTONE	ARCHIVE	
2.5-3	REFUSAL		

A7-H1

DEPTH	SOIL TYPE	TOTAL U ppm	TC-99 piC/g
0-0.5	BROWN TOPSOIL	18.7 -	1.1 U
0.5-1	BROWN TOPSOIL	ARCHIVE	
1-1.5	BROWN CLAY	6.4 -	1.0 U
1.5-2	BROWN CLAY	ARCHIVE	
2-2.5	BROWN CLAY W/GRAVEL	3.7 -	1.0 U
2.5-3	BROWN CLAY W/GRAVEL	ARCHIVE	
3-3.5	BROWN CLAY W/GRAVEL	1.4 -	1.1 U
3.5-4	BROWN CLAY W/GRAVEL	ARCHIVE	
4-4.5	DARK BROWN CLAY	1.4 -	1.0 U

A7-H1A

DEPTH	SOIL TYPE	TOTAL U ppm	TC-99 piC/g
0-0.5	SILTY	14.9 J	1.1 U
0.5-1	CLAY	N/A	N/A
1-1.5	CLAY	ARCHIVE	
1.5-2	CLAY	N/A	N/A
2-2.5	CLAY W/ LIMESTONE	ARCHIVE	
	REFUSAL		

A7-H3

DEPTH	SOIL TYPE	TOTAL U ppm	TC-99 piC/g
0-0.5	ROOTS/ TOPSOIL	15.5 -	1.8 -
0.5-1	ROOTS/ TOPSOIL	ARCHIVE	
1-1.5	ROOTS/ TOPSOIL	19 -	3.4 -
1.5-2	ROOTS/ TOPSOIL	ARCHIVE	
2-2.5	CLAY/ ROCKS	3.1 J	1.2 J
2.5-3	CLAY/ ROCKS	ARCHIVE	
3-3.5	CLAY/ ROCKS	4.7 J	1.2 U
3.5-4	CLAY/ ROCKS	ARCHIVE	
4-4.5	CLAY/ ROCKS	5.5 J	1.0 U
4.5-5	CLAY MIX	ARCHIVE	
5-5.5	CLAY MIX	4.4 J	1.0 U
5.5-6	CLAY MIX	ARCHIVE	
6-7.5	CLAY MIX	4.5 J/2.5 J	1.1/1.1

A7-H1C

DEPTH	SOIL TYPE	TOTAL U ppm	TC-99 piC/g
0-0.5	BROWN TOPSOIL	16.2 -	1.1 J
0.5-1	BROWN TOPSOIL	N/A	N/A
1-1.5	BROWN SOIL	ARCHIVE	
1.5-2	BROWN SOIL	N/A	N/A
2-2.5	BROWN ROCKY, CLAY	ARCHIVE	
	REFUSAL		

A7-H4A

DEPTH	SOIL TYPE	TOTAL U ppm	TC-99 piC/g
0-0.5	BROWN SOIL	31.7 J	1.0 U
0.5-1	BROWN SOIL	N/A	N/A
1-1.5	BROWN SOIL	ARCHIVE	
1.5-2	BROWN SOIL	N/A	N/A
2-2.5	BROWN SOIL	ARCHIVE	
2.5-3	BROWN SOIL	N/A	N/A
3-3.5	BROWN SOIL	ARCHIVE	
3.5-4	BROWN SOIL	N/A	N/A
4-4.5	BROWN SOIL	ARCHIVE	

A7-H4

SOIL TYPE	TOTAL U ppm	TC-99 piC/g
BROWN SOIL	13.5 J	1.3 U
BROWN SOIL	N/A	N/A
BROWN SOIL	15.9 J	1.8 U
BROWN SOIL	N/A	N/A
BROWN SOIL	2.5 J	1.0 U
BROWN SOIL	N/A	N/A
BROWN SOIL	9.3 J	1.2 U
BROWN SOIL	N/A	N/A
BROWN SOIL	11.9 J	1.1 U

A7-H2

DEPTH	SOIL TYPE	TOTAL U ppm	TC-99 piC/g
0-0.5	BROWN SOIL	12.0 J	1.3 J
0.5-1	BROWN SOIL	ARCHIVE	
1-1.5	BROWN SOIL	11.6 J	1.1 U
1.5-2	BROWN SOIL	ARCHIVE	
2-2.5	BROWN SOIL	2.2 J	1.1 U
2.5-3	BROWN SOIL	ARCHIVE	
3-3.5	BROWN SOIL	3.7 -	1.1 J
3.5-4	BROWN SOIL	ARCHIVE	
4-4.5	BROWN SOIL	1.7 J	1.3 J

A7-H4C

DEPTH	SOIL TYPE	TOTAL U ppm	TC-99 piC/g
0-0.5	BROWN SOIL	9.1 -	1.1 U
0.5-1	BROWN SOIL	N/A	N/A
1-1.5	BROWN SOIL	ARCHIVE	
1.5-2	BROWN SOIL	N/A	N/A
2-2.5	BROWN SOIL	ARCHIVE	
2.5-3	BROWN SOIL	N/A	N/A
3-3.5	BROWN SOIL	ARCHIVE	
3.5-4	BROWN SOIL	N/A	N/A
4-4.5	BROWN SOIL	ARCHIVE	

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STATE PLANAR COORDINATE SYSTEM 1983

FIGURE 1-1. CONSTRUCTION LAYDOWN SAMPLING LOCATIONS

29-NOV-1999

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RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE DRAFT INTEGRATED REMEDIAL DESIGN PACKAGE FOR AREA 3 LIME SLUDGE PONDS (REVISION B)

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

GENERAL COMMENTS

1) Commenting Organization: OEPA Commentor: OFFO
Section #: Page #: Line #: Code: C
Original Comment #: 1

Comment: The plan should be revised to remove the above WAC area south of the K-65 trench from the construction area. Currently the construction area encompasses this area. All activity should be excluded from this area to prevent the contractor from disturbing above-WAC soils.

Response: This area is designated as a laydown area for the contractor during the excavation. There are no other feasible alternatives to this area that would provide adequate support to the contractor. In order to prevent the disturbance of any above-WAC material present in the soil, a geotextile will be placed on the ground and covered with 6 inches of gravel. This will allow the contractor access to the area and provide a laydown area without the spread of the above-WAC contamination. The gravel and geotextile will be removed at a later date, after completion of Water Management Facility (WMF) operations as part of the final remediation of the area. The geotextile and gravel will be radiologically monitored upon their removal and dispositioned appropriately.

Action: The placement and removal of geotextile and gravel in the contractor support area south of the K-65 trench will be incorporated into the Integrated Remedial Design Package (IRDP).

2) Commenting Organization: OEPA Commentor: OFFO
Section #: Page #: Line #: Code: C
Original Comment #: 2

Comment: The plan should be revised to include additional detail regarding any preliminary dewatering activities. Such activities are mentioned but no details are provided. Early efforts to dewater the sludge would seem beneficial for both excavation and placement activities.

Response: Test pits will be excavated from the Lime Sludge Ponds (LSP) in an effort to determine the effectiveness for dewatering the sludge material. If these pits indicate that trenches may be effective in dewatering the sludge, then a trench will be excavated running west to east along the northern edge of the North LSP and then south along the eastern edge of the two ponds. This phased approach is currently being developed into an advanced work package that will be implemented prior to the excavation contractor performing the actual remediation of the LSPs. See additional details in response to OEPA Comment Nos. 3 and 10.

APPENDIX B

V/FCNs 20500PSP01-9, 12, 14, and 15

VARIANCE / FIELD CHANGE NOTICE	V 20500-001-9
WBS NO.: PROJECT/DOCUMENT ECDC #20500-PSP-0001 Rev0.	Page 1 of 3
PROJECT TITLE: PSP for WAC Attainment Sampling of Area 7 Soils	Date: 6/23/99

VARIANCE / FIELD CHANGE NOTICE (Include justification):

3024

Field Change Notice:

This variance outlines areas that need to be physically sampled/and or measured by real-time instruments for Area 7 Phase II WAC attainment, in the newly identified Area G (Phase 1 activities covered areas A-F). Sampling and real-time measurements will be used to support elements of the Accelerated Waste Retrieval Project not covered in the WAC Attainment Area 7 PSP (for Phase I).

Most of area G currently consists of soil vegetated areas and gravel roadways. Area G consist of several locations (as shown on Figure 1 on page 3 of this variance):

-East of Silo 2, 3 & 4 (future pipe support area from Silo 4 to proposed Transfer Tank area)

-South of Silo 1 (construction lay-down area)

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Section 1.1 of the PSP stated "a Phase II field sampling program which will focus on the Silo 1 and 2 soil berms and several areas associated with the silo berms will be addressed under a separate PSP." Due to the limited scope of Phase II soil sampling and real-time monitoring a new PSP will not be generated; the work for Phase II is identified in this V/FCN to the existing Phase I PSP.

Physical Sampling

Physical soil sampling in Area G will be performed East of Silos 2, 3 & 4 and south of Silo 1. There are 12 sample locations identified as G1 - G12 on Figure 1 on page 3 of this variance.

- Points G1-G6 will be sampled at 0 - 0.5 feet and will be for WAC determination of the construction lay down area.
- Points G7 - G12 will be to a 5 foot depth with the sample intervals described below. These points will be for WAC determination of the future pipe support area.

The target analytes for all samples will be Total U/Tc-99. The soil sampling and analytical requirements will be the same as is in the PSP (Sampling and Analytical Requirements, Table 2-1). All sample containerization, radiological screening and validation described in the PSP will be followed for this scope of work.

ORIGINAL

Continued on following page....

REQUESTED BY: Darren Wessel/Tom Crawford DATE: 6/23/99

X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE Frank Thompson	6/29/99	X	PROJECT MANAGER	6-28-99
	DATA QUALITY MANAGEMENT		X	REAL-TIME PROGRAM MANAGER	6/23/99
X	ANALYTICAL CUSTOMER SUPPORT Bill Waterman	6/24/99	X	CHARACTERIZATION LEAD	6/24/99
X	FIELD SAMPLING MANAGER	6-24-99	X	WAC	6/24/99

VARIANCE/FCN APPROVED [X]YES [ ]NO

REVISION REQUIRED: [ ]YES [x]NO

DISTRIBUTION

PROJECT MANAGER:	DOCUMENT CONTROL: Jeanie Rosser	OTHER:
QUALITY ASSURANCE:	OTHER:	OTHER:
		000018

Continued from preceding page...

3024

The depth and coordinates for soil sampling consist of the following:

Sample Identifier	Discrete Sample Interval (feet)	Northing Coordinate	Easting Coordinate
A7-G1-1-R	0-.5	480203.0	1347134.02
A7-G2-1-R	0-.5	480236.79	1347078.09
A7-G3-1-R	0-.5	480197.37	1347039.05
A7-G4-1-R	0-.5	480235.39	1346989.11
A7-G5-1-R	0-.5	480193.85	1346938.81
A7-G6-1-R	0-.5	480238.91	1346889.02
A7-G7-1-R	0-.5	480524.85	1347174.08
A7-G7-3-R	1-1.5	480524.85	1347174.08
A7-G7-6-R	2.5-3	480524.85	1347174.08
A7-G7-10-R	4.5-5	480524.85	1347174.08
A7-G8-1-R	0-.5	480615.77	1347176.78
A7-G8-3-R	1-1.5	480615.77	1347176.78
A7-G8-6-R	2.5-3	480615.77	1347176.78
A7-G8-10-R	4.5-5	480615.77	1347176.78
A7-G9-1-R	0-.5	480692.76	1347159.4
A7-G9-3-R	1-1.5	480692.76	1347159.4
A7-G9-6-R	2.5-3	480692.76	1347159.4
A7-G9-10-R	4.5-5	480692.76	1347159.4
A7-G10-1-R	0-.5	480753.8	1347106.43
A7-G10-3-R	1-1.5	480753.8	1347106.43
A7-G10-6-R	2.5-3	480753.8	1347106.43
A7-G10-10-R	4.5-5	480753.8	1347106.43
A7-G11-1-R	0-.5	480852.06	1347107.6
A7-G11-3-R	1-1.5	480852.06	1347107.6
A7-G11-6-R	2.5-3	480852.06	1347107.6
A7-G11-10-R	4.5-5	480852.06	1347107.6
A7-G12-1-R	0-.5	480939.5	1347106.43
A7-G12-3-R	1-1.5	480939.5	1347106.43
A7-G12-6-R	2.5-3	480939.5	1347106.43
A7-G12-10-R	4.5-5	480939.5	1347106.43

Real-Time Monitoring

Real-time monitoring will only be performed in the portion of Area G immediately south of the Silo 1. Real-time monitoring will NOT be performed in neither the portion of Area G east if Silo 2 (because the area is predominately gravel), nor east of Silos 3 and 4 (since the measurements were already collected in this location under Phase I).

Monitoring will consist of as close to 100% HPGe coverage. Due to high background gamma emissions from Silos 1 and 2, the NaI detectors will not be used. Real-time measurements will follow sections 3.2 - 3.6 of the PSP.

The real-time measurement numbering system will be modified to identify work being performed in Area G., and will follow the numbering system:

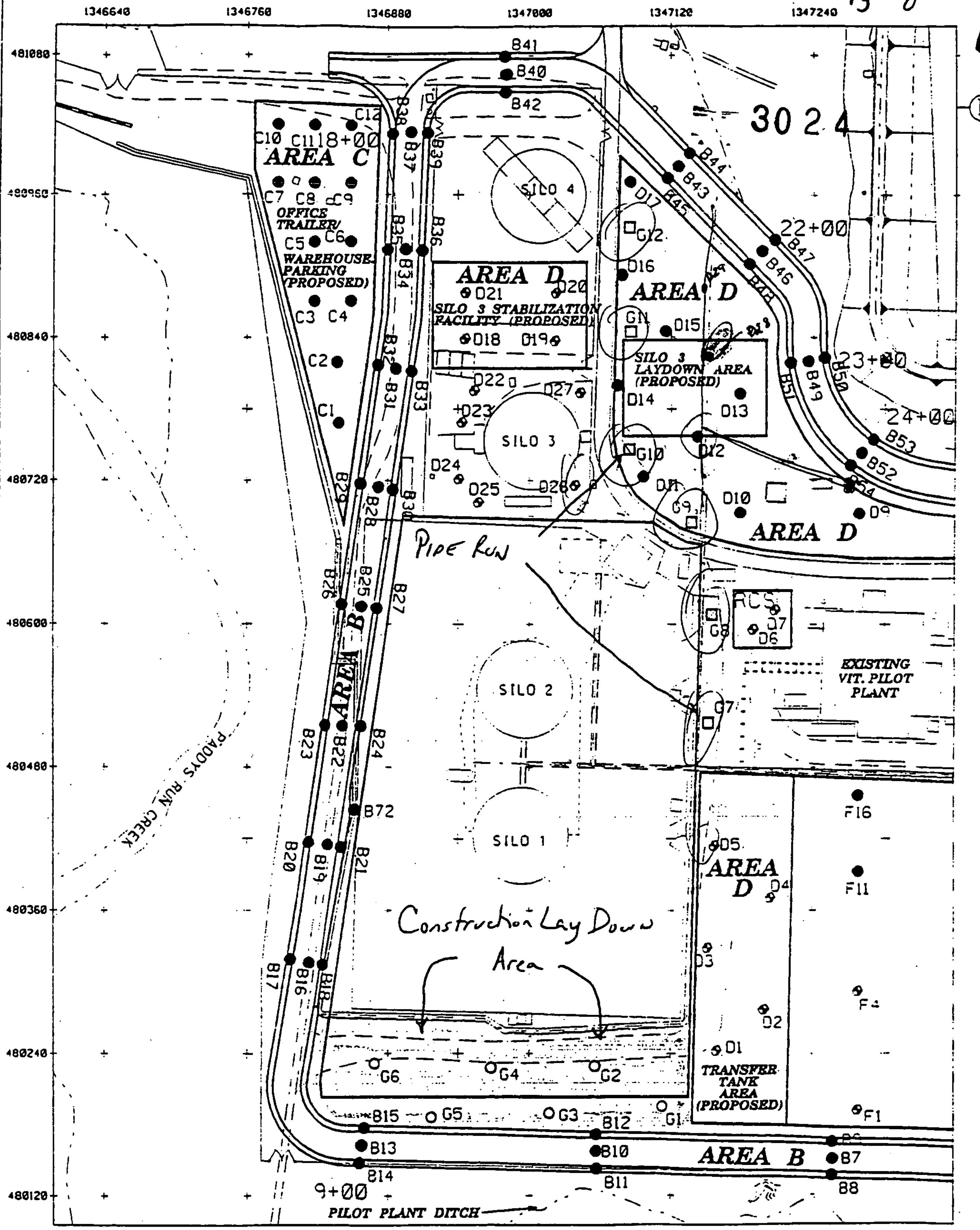
A7-G1-G-D where:
A7 = Area 7
G = Area G
1 = first gamma measurement
G = Gamma
D = duplicate (1 in 20 measurements)

000019

Justification:

This Phase II sampling under the Area 7 WAC Attainment PSP is necessary to determine the WAC status of soils in the additional area planned for construction by the Silos Project. Sample locations G7-G12 are intended to provide WAC data for the general corridor for the planned series of pipe support foundations for the Accelerated Waste Retrieval Project.

Project/Document ECDC# 20500-PSP-0001 Rev 0 Variance # 20500-001-9 Pg 3 of 3



LEGEND:

- ● PHASE I BORING LOCATION (<5 FEET)
- ⊕ PHASE I BORING LOCATION (5 FEET)
- □ PHASE II BORING LOCATION (5 FEET)
- ○ PHASE II BORING LOCATION (0 - 6 INCHES)

SCALE

120 60 0 120 FEET

FIGURE 1. SILOS PROJECT AREA, SOIL WAC ATTAINMENT SAMPLING LOCATIONS. (COMPLETED PHASE I AND PROPOSED PHASE II LOCATIONS)

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STATE PLANAR COORDINATE SYSTEM 1983

25-JAN-1999

000020

VARIANCE / FIELD CHANGE NOTICE

WBS NO.: PROJECT/DOCUMENT #20500-PSP-0001, Rev 0

PROJECT TITLE: PSP for Area 7 WAC Attainment Sampling of Area 7 Soils

Date: 2/9/00

VARIANCE / FIELD CHANGE NOTICE (Include justification):

This Variance Field Change Notice (V/FCN) adds two additional sample locations in Area D. Collect soil borings at two new locations (A7-D28 and A7-D29) within Area D at the following coordinates to a depth of five feet. Listed below are the locations for the soil borings:

3024

Location ID	Northing	Easting
A7-D28	480824.2	1347167.6
A7-D29	480881.0	1347173.3

Soil samples will be collected at the 0-0.5, 1-1.5, 2.5-3, and 4.5-5 depth intervals at each location. The borings will be scanned with a beta-gamma frisker per Section 2.2.3 of the PSP. The soil sampling and analytical requirements will be the same as those identified in Table 2-1 and sample identification will follow Section 2.3. The samples will be analyzed for total uranium and technetium-99 at ASL B per the PSP.

Justification

Existing RI/FS and 0-0.5 feet WAC attainment data is insufficient to characterize at depth since the depth of the original drainage excavation area has been revised. Thus, additional Area D samples are needed to demonstrate WAC attainment for excavation and installation of catch basins and drainage lines. This area will be a concrete storage area. The catch basins and drainage lines will collect surface water and drain through a larger culvert (replacing the existing culvert) to the existing storm water retention pond just north of the Silos Infrastructure Road.

REQUESTED BY: Mike Rolfes DATE: 2/9/00

X IF REQD	VARIANCE/FAN APPROVAL	DATE	X IF REQD	VARIANCE/FAN APPROVAL	DATE
X	Quality Assurance [signature]	02/10/00	X	Sampling Project Manager [signature]	2/9/00
				Real-time Lead	
X	[signature]	02/10/00	X	Characterization Contact [signature]	2/9/00
X	Project & Sampling Manager [signature]	2-7-00	X	WAC [signature]	2/9/00

VARIANCE/FCN APPROVED [x]YES [ ]NO

REVISION REQUIRED: [ ]YES [x]NO

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QUALITY ASSURANCE:	OTHER:	OTHER:

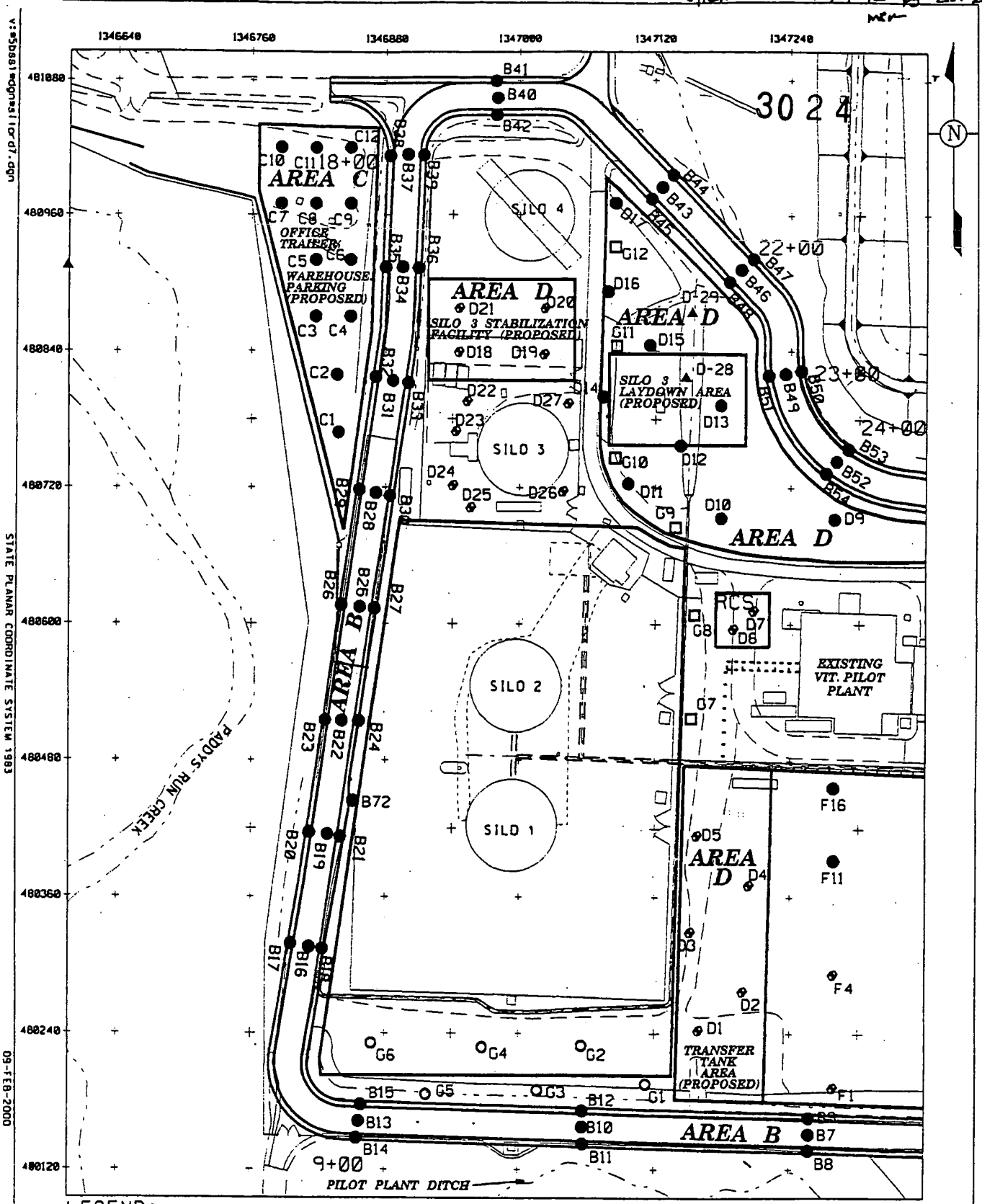

FIGURE 1. SILOS PROJECT AREA. SOIL WAC ATTAINMENT SAMPLING LOCATIONS. (COMPLETED PHASE I AND PROPOSED PHASE II LOCATIONS)

VARIANCE / FIELD CHANGE NOTICE

V/FCN20500PSP1-14
Page 1 of 3

WBS NO.: PROJECT/DOCUMENT #20500-PSP-0001, Rev 0

PROJECT TITLE: PSP for Area 7 WAC Attainment Sampling of Area 7 Soils

Date: 3/15/00

VARIANCE / FIELD CHANGE NOTICE (Include justification):

3024

A small soil/sand/gravel pile (approximately 700 yd3 and identified as WPR-008) is located just north of Area E (K65 Laydown Area) and is comprised of clean construction material (sand and gravel) purchased from an offsite vendor. This material was mixed with soil from construction of the IT-operated Gas Cleaning System/Water Treatment System (GCS/WTS) building located in Area 6. The soil and construction material were consolidated into a pile at the current location north of K65 Laydown area and south of the Second Street (Figure 1).

Analytical data from previous RI/FS sampling of the soil around and under the footprint of GCS/WTS building are all below OSDF WAC except for one total uranium sample (1753 ppm). Based on this information, total uranium will be retained as a COC for sampling. Technetium-99 was detected at below-WAC concentrations and will also be retained as a COC. All other available analytical data for OSDF WAC COCs were non-detects.

In addition, this soil is not located near any of the six geographical areas of the FEMP identified in the OU5 ROD as having reasonable potential for the presence of soil that qualifies as a Resource Conservation and Recovery Act characteristic area. Based on this process knowledge, TCLP metals analysis will not be considered for analysis.

This Variance Field Change Notice (V/FCN) adds sampling at three boring locations in this stockpile north of Area E. Due to the short length and narrow width of the pile, the boring locations are evenly spaced. The six-inch depth intervals listed below are randomly generated. The depth of each boring number is the approximate depth of the pile at that location plus one additional foot. Listed below is the location and depth for the soil boring:

Boring ID	Northing	Easting	Depth(ft)	Sample Depth Interval (ft)
A7-WPR8-1	480724	1347981	12	4-4.5
A7-WPR8-2	480715	1347927	11	9-9.5
A7-WPR8-3	480712	1347891	9	3-3.5

The entire boring will be scanned with a beta-gamma frisker per Section 2.2.3 of the PSP. If any interval exceeds background of the beta-gamma frisker, this interval will supersede the predetermined sample depth interval. The soil sampling and analytical requirements will be the same as those identified in Table 2-1 and sample identification will follow Section 2.3. The samples will be analyzed for total uranium and technetium-99 at ASL B and validated per the PSP.

Justification

Due to lack of tracking of bulk material during site prep for the WRPRAP project, other Area 6 sources of soil may have been added to the pile. Available RI/FS data from the GCS/WTS building footprint and surrounding Area 6 soils are below WAC except for total uranium. The above-WAC data for total uranium, as well as the presence of technetium-99 around the footprint of the GCS/WTS building, warrants further sampling to demonstrate WAC attainment.

000023

REQUESTED BY: Mike Rolfes DATE: 3/15/00

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VARIANCE / FIELD CHANGE NOTICE

V/FCN20500PSP1-14
Page 2 of 3

WBS NO.: PROJECT/DOCUMENT #20500-PSP-0001, Rev 0

PROJECT TITLE: PSP for Area 7 WAC Attainment Sampling of Area 7 Soils 3024

Date: 3/15/00

X IF REQD	VARIANCE/FAN APPROVAL	DATE	X IF REQD	VARIANCE/FAN APPROVAL	DATE
X	QUALITY ASSURANCE Frank Thompson	3-14-00	X	PROJECT MANAGER	3-16-00
				Real-time Lead	
X	ANALYTICAL/CUSTOMER SUPPORT	03/15/00	X	Characterization Contact	3/15/00
X	Sampling Manager Tom Bubolz	3/15/00	X	WAO Linda Barlow	3/15/00

VARIANCE/FCN APPROVED [x]YES [ ]NO

REVISION REQUIRED: [ ]YES [x]NO

DISTRIBUTION

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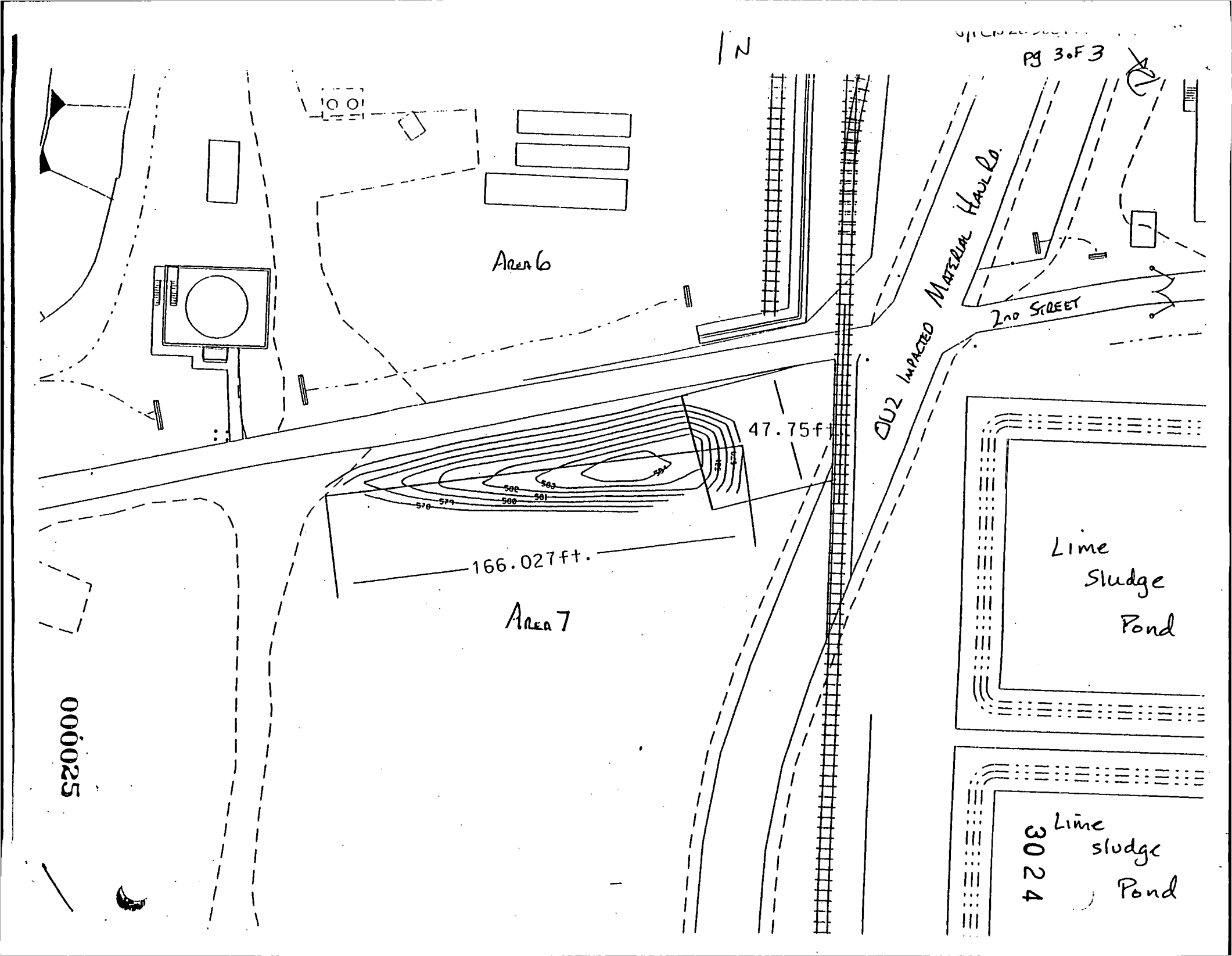
QUALITY ASSURANCE:	OTHER:	OTHER:


N
Area 6
47.75ft.
166.027ft.
Area 7
OU2 Impacted Material Haul Rd.
2nd Street
Lime Sludge Pond
Lime sludge Pond
000025
3024

VARIANCE / FIELD CHANGE NOTICE

V/FCN2050 PSP-15

WBS NO.: PROJECT/DOCUMENT #20500-PSP-0001, Rev 0

PROJECT TITLE: PSP for Area 7 WAC Attainment Sampling of Area 7 Soils

Date: 4/11/00

VARIANCE / FIELD CHANGE NOTICE (Include justification):

3024

This Variance Field Change Notice (V/FCN) supercedes variance 13. Variance 13 added four new sample locations in Area F to the depth of 15 feet. Listed below is the location and the new depth (6 feet) for the soil borings:

Location ID	Northing	Easting	Depth
A7-F21	480331.6	1347675.4	6'
A7-F22	480309.8	1347674.9	6'
A7-F23	480247.0	1347675.4	6'
A7-F24	480184.2	1347667.8	6'

Soil samples will be collected at the 1.5-2.0', 3.5-4.0', 5.5-6.0' depth intervals for the 6 foot borings. The borings will be scanned with a beta-gamma frisker per Section 2.2.3 of the PSP. The soil sampling and analytical requirements will be the same as those identified in Table 2-1 and sample identification will follow Section 2.3. The samples will be analyzed for total uranium and technetium-99 at ASL B per the PSP.

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Justification

The Silos contractor will not be installing the three cistern tanks as previously designed. The underground piping (sanitary line) along the western perimeter of Area F will be installed. The existing RI/FS and 0-0.5 feet WAC attainment data is insufficient to characterize at-depth. Thus, additional Area F samples are needed to demonstrate WAC attainment for excavation and installation of the drainage lines to the depth of 6 feet.

REQUESTED BY: Mike Rolfes DATE: 2/29/00

X IF REQD	VARIANCE/FAN APPROVAL	DATE	X IF REQD	VARIANCE/FAN APPROVAL	DATE
X	QUALITY ASSURANCE Pamela Thompson	4/11/00	X	PROJECT MANAGER	4-11-00
				Real-time Lead	
X	ANALYTICAL CUSTOMER SUPPORT	04/4/00	X	Characterization Contact Michael J Rolfes	4/11/00
X	Sampling Manager Dan Bubolz	4/11/00	X	WAO Linda Bolton	4/11/00

VARIANCE/FCN APPROVED [x]YES [ ]NO

REVISION REQUIRED: [ ]YES [x]NO

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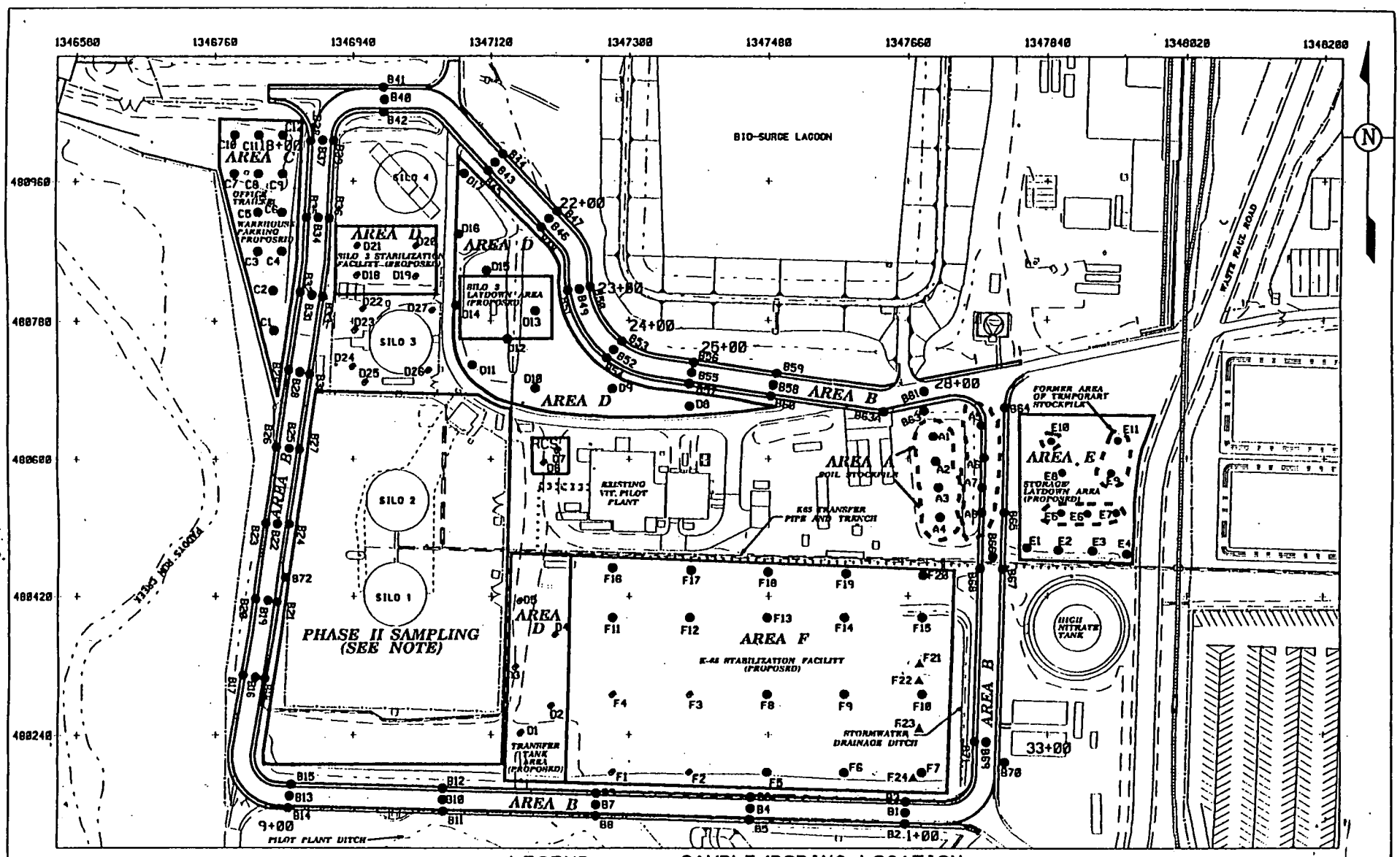

NOTE:
PHASE II SAMPLING TO BE PERFORMED UNDER SEPARATE PSP

LEGEND:
- ● SAMPLE/BORING LOCATION
- ● DEEP BORING LOCATION IN AREAS OF FUTURE BUILDING FOUNDATIONS
- ▲ CISTERN/PIPING SAMPLE LOCATIONS

SCALE
180 90 0 180 FEET

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STATE PLANAR COORDINATE SYSTEM 1983
25-FEB-2000

FIGURE 1. SILOS PROJECT AREA. SOIL WAC ATTAINMENT SAMPLING LOCATIONS